

SOME NOTES ON OUR YELLOW CYPRIPEDIUMS.

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THOUGH the extreme forms of our native yellow Cypripediums have been recognized as species under the names *Cypripedium pubescens* Willd. (Sp. Pl. 4: 143. 1805) and *C. parviflorum* Salisb. (Trans. Linn. Soc. 1: 77. 1791) I have long doubted their specific distinctness. Study of the plants growing in the field and also of some under cultivation in the garden would seem to prove that we have at best a species, *C. parviflorum* Salisb., which would appear to be our small flowered plant which has commonly passed under this name, while the larger flowered form would appear to require the name, *Cypripedium parviflorum* var. **pubescens**, in order that its exact relationship be better expressed.

On May 30, 1901, Mr. F. M. Billings found a clump bearing eleven flowering stalks which could be referred under the descriptions in the current manuals to no other species than *Cypripedium pubescens*. They agreed perfectly with the descriptions in size of flower, compression of lip, shape of foliage and all the characters except color of the blossoms which were bright, not pale yellow. These plants were growing in very rich soil in low shady woods. A portion of the plant was pressed and three flowers from it are now in my herbarium. Mr. Billings transplanted part of the cluster into his garden, putting them into less rich soil and in a sunnier spot than where they naturally grew. In 1905 the characters of these plants were so far changed that they would pass very well for the small-flowered plant, *Cypripedium parviflorum*. The whole plant had become shorter and slenderer with narrower foliage, the lips of the flowers less than an inch in length (some were two inches at time when transplanted), lips not appreciably flattened laterally and in fact not any longer possessing the characters of the large-flowered plant.

During the past few years I have annually transplanted into my garden clumps of a plant which agreed in all essential characters with the *Cypripedium parviflorum* of the manuals, save that in most instances the blossoms were pale yellow, not bright yellow, as called for by the descriptions, but some plants had bright yellow blossoms though not otherwise differing. The plants longest growing in the garden (about five years) have increased in size, have larger broader foliage, flowers with lips up to one and three-quarters inches long which are deeper

yellow colored; and in fact many have the essential characters of what has passed as *C. pubescens*, while others not so long in the garden do not show quite so great a change. My plants were originally growing in moss in a cold bog, and did not blossom until past the middle of June, many not until the first of July. I transplanted them into very rich soil in a sunny locality, and now the earliest bloom sometimes by the third week in May, and even plants which were transplanted the year before are in bloom by June first. All the plants bear increased numbers of flowering stalks, and nearly all the stalks bear two flowers where originally it was very rare to find more than one on a stalk. One season two stalks from the same plant bore flowers whose lip on one stalk was laterally compressed while on the other it was strongly compressed from above, there being one flower on each of these stalks.

While studying the plants in their natural habitat in Maine I have repeatedly found many which were intermediate in characters between *Cypripedium parviflorum* and *C. pubescens* and in most instances plants readily referable to one or the other form (sometimes both forms) were growing with these intermediates. In both the large-flowered and small-flowered plants I have seen flowers both pale yellow and deep yellow; both with fragrant and odorless flowers, some with ovate sepals, others with elongated lanceolate ones; some broad-leaved, others narrow leaved; some with sepals and petals decidedly brownish-purple, others not so; in fact almost every combination of characters.

The dwarf, small-flowered plant of the Rocky Mountain region which is sometimes not more than six inches high and with lip not more than half an inch in length seems very distinct from either of ours until some essential character besides size is sought for, at which stage there seems to be no other differential characters. Taking the two plants as found in the East, the extremes seem very different; but the characters given in the manuals do not hold good for each form. Even Gray's Manual, 6th ed., p. 511, states at the end of the description of *C. parviflorum*,—"Flowers fragrant; sepals and petals more brown-purple than in the next, [referring to *C. pubescens*] *into which it seems to pass*" (italics mine).

The characters ordinarily given in descriptions fail to serve as an absolute means of separation of the two plants, and unless the numerous specimens possessing characters of both forms can be accounted for on the grounds of hybridism we ought to regard them as different phases of the same species.

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